

Amendments to the Claims:

This listing of claims replaces all prior versions and listing of claims in the application.

Listing of Claims:

1. (currently amended) A dental model base comprising:  
a stone member having a shape that corresponds generally to at least a portion of a patient's gum line;  
a single piece encasement member having a sidewall defining a cavity in which the stone member is cast, the encasement member including first and second ends; and  
structure within extending from the sidewall into the cavity that fixedly retains the stone member within the cavity of the encasement member such that the stone member and encasement member are inseparable without damaging the stone member, wherein the structure extends between the first and second ends.
2. (currently amended) The dental model base of claim 1, wherein the encasement member includes:  
~~a first end and a second end, and~~  
a concave, hemispherical shaped socket at said first end and a latch receiver at said second end.
3. (currently amended) The dental model base of claim 1, wherein the encasement member includes:  
~~a first end and a second end, and~~  
a ball at said first end and a latch receiver at said second end, wherein said ball defines a hemispherical projection extending outwards from the sidewall, said ball being integrally formed with the sidewall.
4. (original) The dental model base of claim 1, wherein the encasement member is connected to an articulator attachment plate.

5. (original) The dental model base of claim 1, wherein the encasement member is attachable to an articulator through a ball and socket connection.
6. (previously presented) The dental model base of claim 5 wherein said encasement member has an hemispheric concavity at a first end; said concavity being adapted to receive a ball connected to an articulator.
7. (original) The dental model base of claim 6 wherein said concavity is adapted to engage an articulator attachment plate.
8. (original) The dental model base of claim 1, wherein the encasement member includes a slot at a first end; said slot adapted to receive an articulator tongue.
9. (currently amended) The dental model base of claim 8 wherein ~~said slot is formed in an articulated attachment bar; said encasement member includes an articulator attachment bar being detachably engaged with said first end of said dental model base, said articulator attachment bar defining said slot.~~
10. (currently amended) The dental model base of claim 1 wherein the structure that fixedly retains the stone member in the encasement member includes a projection having a portion that extends into the stone member in a direction generally perpendicular to the sidewall and another portion that extends into the stone member in a direction generally parallel to the sidewall.
11. (canceled)
12. (currently amended) The dental model base of claim 1, wherein the structure that fixedly retains the stone member in the encasement member includes a recess defined by the encasement member into which a portion of the stone member projects.
13. (currently amended) A single piece dental model base encasement member comprising:  
a dental model support surface;

a rigid wall extending from said dental model support surface; said wall being extending generally perpendicular to said dental model support surface; said wall having an exterior and an interior surface; said wall interior surface extending continuously thereby defining a cavity; said cavity generally corresponding to the curvature of a gum; said cavity comprising a structure extending that projects into the cavity and extends along a length of the cavity between opposing first and second ends of the encasement member, the structure being and adapted to fixedly engage a cast dental model base formed in the cavity to provide permanent attachment of the dental model base to the encasement member.

14. (original) The dental model base encasement member of claim 13 wherein said encasement member is adapted for use with a full arch dental model.

15. (original) The dental model base encasement member of claim 13 wherein said encasement member is adapted for use with a quadrant dental model.

16. (previously presented) The dental model base encasement member of claim 13 having a first end and a second end; a hemispherical socket formed in said wall exterior surface at said first end; a latch receiver on said wall exterior surface at said second end.

17. (original) The dental model base encasement member of claim 13 having a first end; said dental model base encasement member attachable to an articulator through a ball and socket connection at said first end.

18. (original) The dental model base encasement member of claim 13 having a first end and a second end; said dental model encasement member being attachable to an articulator attachment plate through a ball and socket connection at said first end and a latch receiver at said second end.

19. (currently amended) The dental model base encasement member of claim 13 having a slot formed in the exterior surface at [[a]] the first end; said slot being adapted to receive an articulator tongue.

20. (original) The dental model base encasement of claim 13 wherein said side wall interior surface is adapted to engage cured casting material formed in said cavity such that perceptible movement between the dental model relative base encasement and the cured casting material is eliminated.

21. (currently amended) A dental model and base comprising:

a casting of a patient's teeth and gum;

a stone base supporting said casting; and

an encasement member having an upper support surface, a lower surface, and a continuous wall extending between the upper support surface and the lower support surfaces surface that defines a cavity for containing said stone base, the cavity continuous wall comprising a structure spaced between the upper support surface and the lower support surfaces surface that extends into the cavity and that fixedly engages said stone base to secure the stone base to the encasement member.

22. (original) The dental model and base of claim 21 wherein said encasement member is transparent.

23. (original) The dental model and base of claim 21 wherein said base and a portion of said casting are connected by a tapered pin fixedly attached to a portion of said stone casting; and said pin being in detachable frictional engagement with a tapered aperture formed in said base.

24. (original) The dental model and base of claim 21 wherein said casting is connected to an articulator through an articulator attachment plate.

25. (original) The dental model and base of claim 21 wherein said casting is connected to an articulator through a ball and socket joint.

26. (original) The dental model and base of claim 21 wherein said encasement member is plastic.

27. (currently amended) A single piece dental model base encasement member comprising:  
a dental model support surface;  
an opposing surface remote from said dental model support surface;  
a continuous wall extending from said dental model support surface to said opposing surface; said wall having an interior surface and an exterior surface; said exterior wall surface having a hemispheric concavity formed therein at a first end of the encasement member, said concavity adapted to receive a spherical connector;  
said wall interior surface forming a cavity adapted to receive uncured casting material, said cavity shaped to correspond generally to the curvature of a patient's gum, and  
said wall being rigid.

28. (currently amended) The encasement member of claim 27 wherein said encasement member further comprises a latch receiver formed as a recess in said exterior surface at a second end of the encasement member, said latch receiver being adapted to receive a latch connector.

29. (previously presented) The encasement member of claim 28 wherein said encasement member is detachably connectable to an articulator attachment plate having a spherical connector and a latch connector.

30. (original) The encasement member of claim 27 wherein said encasement member is connectable to an articulator through a ball and socket joint.

31. (original) The encasement member of claim 27 wherein said encasement member is connectable to an articulator through both an articulator attachment plate and through a ball and socket connection.

32. (canceled)

33. (previously presented) The encasement member of claim 27 wherein said concavity is adapted to receive a spherical member connected to an articulator.

34. (previously presented) The encasement member of claim 27 wherein said concavity is adapted to receive a spherical member connected to an articulator attachment plate.

35. (currently amended) The encasement member of claim 29 wherein said concavity is adapted to receive a spherical member connected to an articulator attachment plate and said latch receiver is adapted to engage a latch connected to protrusion extending from said articulator attachment plate.

36. (original) The encasement member of claim 27 wherein said member is transparent.

37. (original) The encasement member of claim 27 wherein said member is plastic.

38. (original) The encasement member of claim 37 wherein said member is a polycarbonate plastic.

39. (currently amended) A system for connecting a dental model to an articulator comprising:

an encasement member having a dental model support surface and an opposing attachment plate support surface, and a rigid wall extending there between; said wall extending continuously around a circumference of the encasement member thereby defining a cavity adapted to receive uncured casting material; said cavity including a structure extending into the cavity that is positioned between the dental model support surface and the attachment plate support surface and that is adapted to grip said casting material when it cures, the structure extending from the rigid wall within a plane generally parallel to the dental model support surface; and

an articulator attachment plate; said articulator attachment plate extending along the attachment plate support surface and being connectable to said encasement member and to an articulator.

40. (currently amended) A system for connecting a dental model to an articulator comprising:

an encasement member; said encasement member including a continuously extending rigid wall that defines a cavity adapted to receive uncured casting material; said cavity comprising an rigid wall defining a structure projecting into the cavity, the structure including an undercut structure adapted to grip said casting material when it cures into a stone member so as to form an inseparable member comprising connection between the encasement member and the stone member; and

a ball and socket connector adapted to connect said encasement member to an articulator.

41. (currently amended) A dental model assembly comprising:

an encasement member defining a cavity adapted to receive uncured casting material, the cavity being defined by a wall that extends continuously around [[a]] an entire circumference of the cavity, the cavity being shaped to generally correspond to at least a portion of a patient's gum line, the cavity being open adjacent opposite first and second sides of the encasement member; and

an attachment plate removably connectable to the encasement member, the attachment plate acting as a cover for enclosing the cavity adjacent the first side of the encasement member.

42. (previously presented) The dental model assembly of claim 41, wherein the attachment plate connects to the encasement member by a snap-fit connection.

43. (currently amended) A dental model assembly comprising:

a) a dental model base including:

i) a rigid, single piece encasement member defining having a continuous wall that defines a cavity shaped to generally correspond to at least a portion of a patient's gum line, the encasement member including an attachment structure that projects into the cavity, the attachment structure being integrally formed with the wall;

ii) a stone member cast within the cavity, the stone member being shaped to generally correspond to the portion of the patient's gum line, the stone member defining at least one pin opening;

b) a dental model adapted to be supported on the dental model base, the dental model including at least one pin that fits within the at least one pin opening of the stone member; and

c) an articulator directly connected to the encasement member of the dental model base.

44. (canceled)

45. (currently amended) A method for forming a dental model and base assembly comprising:

filling a cavity defined by a single piece encasement member with uncured casting material; the encasement member including an engagement structure extending into the cavity that engages the casting material in said cavity such that the cured casting material is fixed to the encasement member; said encasement member and cured casting material forming a dental model base; and

placing a cast dental model adjacent said uncured casting material in said cavity; said dental model being engaged with said dental model base when said casting material is cured;

wherein a pin is connected to said cast dental model and said pin extends into said uncured casting material when said dental model is placed adjacent said uncured casting material in said cavity.

46. (canceled) The method of claim 45

47. (original) A method of attaching a dental model to an articulator comprising:

filling a cavity formed by an encasement member with uncured casting material; placing a dental model adjacent said uncured casting material in said cavity; said dental model having at least one pin extending into said uncured casting material; said dental model being engaged with said casting material when said casting material is cured;

engaging a spherical connector with a concave portion of said encasement member; said spherical connector being connected to an articulator.

48. (original) The method of claim 47 wherein:

    said spherical connector is glued into position after engaging the concave portion of said encasement member.

49. (original) The method of claim 48 wherein said spherical connector is connected to a plastic articulator.

50. (original) A method of attaching a dental model to an articulator comprising:

    filling a cavity formed by an encasement member with casting material;

    placing a dental model adjacent said uncured casting material in said cavity; said dental model being engaged with said casting material when said casting material is cured;

    engaging a spherical connector with a concave portion provided at a first end of said encasement member; said spherical connector being at a first end of an articulator attachment plate;

    rotating said articulator attachment plate around said concave portion of said encasement member until a latch on a second end of said articulator attachment plate engages a latch receiver at a second end of said encasement member; and

    attaching said articulator attachment plate to an articulator.

51. (currently amended) A method of attaching a dental model to an articulator comprising:

    filling a cavity with uncured casting material, the cavity being defined by a rigid, single piece encasement member with uncured casting material, said encasement member including a continuous wall having an interior surface that defines the cavity, the interior wall including a structure that protrudes into the cavity, the structure extending within a plane that is spaced between an upper and a lower surface of the encasement member;

    placing a cast dental model adjacent said uncured casting material in said cavity and adjacent the upper surface; said dental model being engaged with said casting material when said casting material is cured; and

connecting said encasement member to an articulator.

52. (original) The method of claim 51 wherein said encasement member forms a ball and socket joint with the articulator.

53. (original) The method of claim 51 wherein said encasement member detachably engages an articulator attachment plate and said articulator attachment plate being adapted to be connected to the articulator.

54. (original) The method of claim 51 wherein said encasement member has a slot at a first end; said slot adapted for receiving an articulator attachment tongue.

55. (original) The method of claim 54 wherein said slot is formed in an articulator attachment bar that slidingly engages the encasement member first end.